REMOVAL PROGRAM
PRELIMINARY ASSESSMENT/
SITE INVESTIGATION REPORT
FOR THE
LONSDALE BLEACHERY SITE
LINCOLN, RHODE ISLAND
22 SEPTEMBER 2004, 5 NOVEMBER 2004,
3 MARCH 2005, AND 19 THROUGH 22 APRIL 2005

Prepared For:

U.S. Environmental Protection Agency
Region I
Emergency Planning and Response Branch
1 Congress Street, Suite 1100
Boston, MA 02114-2023

CONTRACT NO. EP-W-05-042

TDD No. 05-07-0036

TASK NO. 0036

DC NO. R-4052

Submitted By:

Weston Solutions, Inc.
Region I
Superfund Technical Assessment and Response Team (START)
240 Andover Street
Wilmington, MA 01887

October 2005

TABLE OF CONTENTS

I. Preliminary Assessment/Site Investigation Forms

EPA REGION I
REMOVAL PRELIMINARY ASSESSMENT

Site Name and Location

Name: Lonsdale Bleachery Site **Location:** Carrington Street
Town: Lincoln **County:** Providence **State:** Rhode Island

Site Status: ( )NPL (√)NON-NPL ( )RCRA ( )TSCA
(√)ACTIVE ( )ABANDONED ( )OTHER

(√)Attached USGS Map of Location (√)Site I.D. No.: 01CK

Latitude: 42° 36′ 32.4″ North **Longitude:** 73° 05′ 38.4″ West

Referral

( )Citizen ( )City/Town (√)State ( )Preremedial
( )RCRA ( )Other:
Name of referring party: Donald Squires, Rhode Island Department of Environmental Management (RI DEM) Office of Compliance and Inspection
Address: 235 Promenade Street, Providence, Rhode Island (RI) **Telephone:**(401) 222-1306

Contacts Identified

1) Donald Squires RI DEM **Telephone:** (401) 222-1306 x 1730
2) **Telephone:** ( )
3) **Telephone:** ( )

Source of Information

( ) Verbal:
(√) Report: *Soil Removal and Preliminary Environmental Assessment Former Lonsdale Mill Lot 96, Plot 5, Lincoln, RI, dated 3 July 1990,* prepared by EMKA Engineers & Consultants, for Mr. Robert Ray, Luther Ray Builders, Inc., 3 July 1990.
( ) Other:

Potential Responsible Parties

Owner: FDS Industries, LLC (Lot 60) **Telephone:**( )
Address:
Owner: Town of Lincoln (Lot 96) **Telephone:**( )
Address:
Operator: **Telephone:**( )
Address:

REMOVAL PRELIMINARY ASSESSMENT

Site Access

Authorizing Person: Michael Voccola, FDS Industries, LLC
Date: 14 September 2004 **(√)Obtained** **( )Verbal**
Telephone: ( ) **( )Not Obtained** **(√)Written**

Authorizing Person: Sue Sheppard, Town Administrator, Town of Lincoln, RI
Date: 14 September 2004 **(√)Obtained** **( )Verbal**
Telephone: ( ) **( )Not Obtained** **(√)Written**

Physical Site Characterization

Background Information: The Lonsdale Bleachery site (the site) is located off Carrington Street in the town of Lincoln, Rhode Island. The site is a former mill located in an industrial complex along the Blackstone River. Portions of the mill complex are currently occupied, and other portions are vacant and have fallen into disrepair, particularly the former boiler room and coal storage shed area on Lot 96. The northwestern portion of the building, where the boiler room, process steam room, and area formerly utilized for coal storage were located, had previously caught fire and been destroyed. The northwesternmost extent of the building, where the former coal storage area was located, was completely destroyed except for the concrete foundation. Adjacent to (west of) the foundation, there is a channelized head-race (Blackstone Canal); and there are abandoned railroad tracks approximately 25 feet above the foundation. In addition, there are three 50,000-gallon (gal) aboveground storage tanks (ASTs) that formerly contained number (No.) 6 fuel oil located adjacent to the foundation. The Blackstone River flows along the eastern property boundary, approximately 15 feet east of the foundation.

Description of Substances Possibly Present, Known or Alleged: On 7 and 8 May 1990, during a site investigation conducted by EMKA Engineers & Consultants (EMKA), 10 test pits were excavated, and EMKA unearthed "heavy ends petroleum" from the excavations. EMKA also observed one 275-gallon AST and one 1,000-gallon AST, which were used to store groundwater and petroleum products pumped from a recovery well located within the mill complex.

Existing Analytical Data

( ) Real-Time Monitoring Data:

(√) Sampling Data: On 7 and 8 May 1990, EMKA identified No. 6 fuel oil and oil-contaminated groundwater stored in ASTs on the site.

REMOVAL PRELIMINARY ASSESSMENT

Potential Threat

Description of potential hazards to environment and/or population-identify any of the criteria for a Removal Action (from NCP) that may be met by the site under 40 CFR 300.415 [b] [2].

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.

iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

vi. Threat of fire or explosion.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

viii. Other situations or factors that may pose threats to public health or welfare or the environment.

Prior Response Activities

( ) PRP **(√) STATE** **( ) FEDERAL** **( ) OTHER**

Brief Description: On 30 July 2004, Rhode Island Department of Environmental Protection (RI DEM) discovered oil seeping into the Blackstone River, notified the National Response Center, and mobilized their contractor to the site to collect the oil and to stop further seepage into the river by deploying containment and absorbent booms. On 10 August 2004, RI DEM and their contractor conducted exploratory excavations behind the retaining wall to document subsurface conditions, and possibly identify the source of the oil.

Priority for Site Investigation

(√) High **( ) Medium** **( ) Low** **( ) None**

Comments: There is a history of oil contamination at the site, and evidence of oil seepage into the Blackstone River.

REMOVAL PRELIMINARY ASSESSMENT

Report Generation

Originator: Aaron Benoit
Affiliation: Weston Solutions (START)
TDD No.: 05-07-0036

Date: 21 October 2005
Telephone: (978) 657-5400
Task No.: 0036

EPA REGION I
REMOVAL SITE INVESTIGATION

Inspection Information

Site Name: Lonsdale Bleachery Site **Address:** Carrington Street
Town: Lincoln **County:** Providence **State:** Rhode Island
Date of Inspection: 22 September 2004 **Time of Inspection:** 0800 hours
Weather Conditions: 60° F, clear.
Date of Inspection: 5 November 2004 **Time of Inspection:** 0730 hours
Weather Conditions: 32° F, partly cloudy.
Date of Inspection: 4 January 2005 **Time of Inspection:** 0730 hours
Weather Conditions: 39° F, overcast.
Date of Inspection: 3 March 2005 **Time of Inspection:** 1000 hours
Weather Conditions: 15° F, clear.
Date of Inspection: 19 through 22 April 2005 **Time of Inspection:** 0730 hours
Weather Conditions: 60° F, clear.
Site Status at Time of Inspection: **(√) ACTIVE** **( ) INACTIVE**
Comments:

Agencies/Personnel Performing Inspection

	Names	Program
(√) EPA:	Frank Gardner Mia Pasquerella Mike Nalipinski	U.S. Environmental Protection Agency (EPA) Emergency Planning and Response Branch Branch (EPRB) On-Scene Coordinator (OSC)
	Harry Compton	EPA Environmental Response Team (ERT)
	Jerry Keefe Dan Grantz Lisa Thout	U.S. EPA Office of Environmental Measurement and Evaluation (OEME) New England Regional Laboratory (NERL).

Agencies/Personnel Performing Inspection (Continued)

(√) EPA Contractor:	Eric Ackerman James Dick Scott Rose Peter Seward Mandy Smith	Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START)
(√) State:	Donald Squires	Rhode Island Department of Environmental Management (RI DEM)
( ) Other:		

Current Owner Based on Field Interview:

Physical Site Characteristics

Parameter	Quantities/Extent
( ) Cylinders:	
( ) Drums:	
( ) Lagoons:	
(√) Tanks:	**(√) Above:** EPA and START observed three 50,000-gallon aboveground storage tanks (ASTs) formerly containing Number (No.) 6 fuel oil located adjacent to the building foundation. **(√) Below:** EPA and START observed a fill pipe and vent cap southeast of the foundation.
(√) Asbestos:	EPA and START observed pipe wrap, with suspected asbestos-containing material (ACM), in poor condition on overhead pipes leading to the boiler room of the mill building, and also covering pipes and boilers within the boiler room. The roof of the boiler room was no longer intact, and the ACM was exposed to the elements.
(√) Piles:	EPA and START observed a pile of excavation spoils on the property that had been generated from previous site activities by EMKA. The pile was relocated to the western foundation area by a WESTON subcontractor during test-pitting activities at the site. A petroleum odor was detected during the transfer of the excavation spoils pile to the western end of the foundation.
( ) Stained Soil:	
(√) Sheens:	EPA and START observed oil sheens along the retaining wall and on the Blackstone River in the vicinity of the site. EPA and START also observed an oily sheen on the standing water within the foundation, and water leaching from the base of the stockpile on the western end of the foundation.

Physical Site Characteristics (Concluded)

( ) **Stressed Vegetation:**
( ) **Landfill:**
(√) **Population in Vicinity:** The site is a former mill located in an industrial complex along the Blackstone River, off Carrington Street. Portions of the mill complex are currently occupied.
( ) **Wells:** ( ) **Drinking:**
( ) **Monitoring:**
( ) **Other:**

Physical Site Observations

The site is a former mill located in an industrial complex along the Blackstone River off Carrington Street in Lincoln, Rhode Island. Portions of the mill complex are currently occupied; and other portions are vacant and have fallen into disrepair, particularly the former boiler room and coal shed area on Lot 96. The northwestern portion of the building, where the boiler room, process steam room, and area formerly utilized for coal storage were located, had previously caught fire and been destroyed. The northwesternmost extent of the building, where the former coal storage area was located, had been completely destroyed except for the concrete foundation. Adjacent to (west of) the foundation, there is a channelized head-race (Blackstone Canal); and there are abandoned railroad tracks approximately 25 feet above the foundation. In addition, there are three 50,000-gallon (gal) ASTs that formerly contained Number (No.) 6 fuel oil located adjacent to the foundation. Oil seeps were observed on the foundation wall of the property and on the Blackstone River in the vicinity of the property. The Blackstone River flows along the eastern property boundary, approximately 15 feet east of the foundation.

ACM pipe wrap in poor condition was observed on overhead pipes leading to the former boiler room of the mill building, and on pipes and boilers within the boiler room. The boiler room no longer had a roof, and was exposed to the elements. Unpaved roads extend around the mill building to the location of the three large, empty ASTs. The area to the north and west of the ASTs was wooded. The area to the south and east of the ASTs was level, and there was a 10-foot-high retaining wall along the Blackstone River.

On 3 March 2005, EPA, OEME, START, and RI DEM personnel observed an underground storage tank (UST) cap and fill pipe adjacent to the smokestack during a site walk-through. In addition, an oil odor was detected within the foundation area in the vicinity of the excavation spoils pile.

Field Sampling and Analysis

Matrix/Analytical Parameter	Field Instrumentation CGI/O_2	RAD	PID	FID	Other
Background Readings:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Air:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Soil:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Surface:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Water:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Tanks:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Drums:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Vats:					
Lagoons:					
Spillage:					
Run Off:					
Piles:	0.0/21.0%	7μR/hr	0.0 units	1.0 units	
Sediments:					
Groundwater:					
Other:					

Field Quality Control Procedures

(√) SOP Followed **( ) Deviation From SOP**

Comments: All sampling at the site was conducted according to the document, entitled *Sampling and Analysis Plan for the Lonsdale Bleachery Site, Lincoln, Rhode Island* dated September 2004.

Description of Sampling Conducted

On 22 September 2004, START collected five ACM bulk samples (ACM-01 through ACM-05) from pipe wrap on piping leading into the boiler room and inside of the boiler room, for asbestos analysis by polarized light microscopy (PLM). One oil sample (Oil-01) was collected from the oil-soaked snare boom located along the eastern perimeter of the site in the Blackstone River. The oil sample was analyzed for polychlorinated biphenyls (PCBs) and Oil ID.

On 5 November 2004, START collected three soil boring samples (LB-4, LB-5, and LB-7) for Oil ID, PCB, and volatile organic compound (VOC) analyses.

On 20 and 21 April 2005, START collected 10 soil boring samples (LB-B9 through LB-B18) from borings advanced by OEME personnel. START also collected three surface soil/source samples from the Lonsdale Bleachery Soil Pile (LB-SP1 through LB-SP3). The soil boring samples and surface soil/source samples were collected for Oil ID, PCB, and VOC analyses. All samples were hand-delivered by START to EPA OEME for analysis.

Analyses

Analytical Parameter	Media	Laboratory
(√) VOCs	( ) AIR	(√) NERL
(√) PCBs	( ) WATER	( ) CLP
( ) PESTICIDE	(√) SOIL	( ) PRIVATE
( ) METALS	(√) SOURCE	( ) SAS
( ) CYANIDE	( ) SEDIMENT	( ) SOW
( ) SVOC		(√) Field
( ) TOXICITY		
( ) DIOXIN		
(√) ASBESTOS		
(√) OIL ID		

Analytical results: [see Appendix E – Analytical Data Table]

Receptors

Comments

( ) Drinking Water **( ) Private:** **( ) Municipal:**

( ) Groundwater:

( ) Unrestricted Access:

(√) Population in Proximity: The site is a former mill located in an industrial complex located along the Blackstone River, off Carrington Street. Portions of the mill complex are currently occupied. Residential properties and a greenbelt / bike path are located within 1/4 - mile of the site.

( ) Sensitive Ecosystem:

( ) Other:

Additional Procedures for Site Determination

( ) Biological Evaluation **( ) ATSDR**

To be determine by the Task Monitor.

Site Determination

Depending on further information, criteria that may be met by the site include 40 CFR 300.415 [b] [2], parts:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

Site Determination (Concluded)

ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.

iii. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

viii. Other situations or factors that may pose threats to public health or welfare or the environment.

Report Generation

Originator: Aaron L. Benoit
Affiliation: Weston Solutions (START)
TDD No.: 05-07-0036
Date: 3 October 2005
Telephone: (978) 657-5400
Task No.: 0036

II. Narrative Chronology

Narrative Chronology

Introduction

On 22 September 2004, Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) members Mandy Smith and Eric Ackerman initiated a removal program preliminary assessment/site investigation (PA/SI) at the Lonsdale Bleachery site (the site). Subsequent site investigations were conducted by U.S. Environmental Protection Agency (EPA) Emergency Planning and Response Branch (EPRB) and START between November 2004 and April 2005. The site is located along Carrington Street in Lincoln, Providence County, Rhode Island [see Appendix A – Figures: Site Location Map (Figure 1)]. Geographic coordinates of the site are latitude 42° 36′ 32.4″ north and longitude 73° 05′ 38.4″ west, as measured from the approximate center of the property. The purpose of the PA/SI was to conduct multimedia sampling at the site to determine if further actions by EPA are necessary.

Site Description

The site is a former mill located in an industrial complex along the Blackstone River, off Carrington Street in Lincoln, Rhode Island. Portions of the mill complex are currently occupied; other portions are vacant and have fallen into disrepair, particularly the former boiler room and coal shed area on Lot 96. The northwestern portion of the building, where the boiler room, process steam room, and area formerly utilized for coal storage were located, had previously caught fire and been destroyed. The northwesternmost extent of the building, where the former coal storage area was located, had been completely destroyed except for the concrete foundation. Adjacent to (west of) the foundation, there is a channelized head-race (Blackstone Canal); and there are abandoned railroad tracks approximately 25 feet above the foundation. In addition, there are three 50,000-gallon (gal) aboveground storage tanks (ASTs) that formerly contained Number (No.) 6 fuel oil located adjacent to the foundation. The Blackstone River flows along the eastern property boundary approximately 15 feet east of the foundation [see Appendix A – Figures: Site Diagram (Figure 2)].

During 1990, EMKA Engineers & Consultants (EMKA) excavated 10 test pits throughout the site to investigate oil seeps into the Blackstone River. During the excavation, EMKA unearthed "heavy ends petroleum (No. 6) tank bottoms having the consistency of heavy asphalt sludge", and also removed the concrete pads that originally supported the ASTs. The ASTs had shifted approximately 10 feet to the west during a previous flooding event. The excavation spoils from the test pits were stockpiled on the concrete foundation and were never removed. EMKA also observed one 275-gal AST and one 1,000-gal AST, which were reportedly used to store groundwater and petroleum product pumped from a recovery well located in the mill complex.

On 30 July 2004, while investigating an unknown sheen observed downstream, the Rhode Island Department of Environmental Management (RI DEM) discovered oil seeping into the Blackstone River from a granite block retaining wall on the site. RI DEM notified the National Response Center and the EPA, and mobilized its contractor to the site to collect the oil and to stop further seepage of oil into the river by deploying containment and absorbent booms.

On 2 August 2004, EPA assigned a Federal Project Number (FPN) and prepared a Pollution Removal Funding Authorization (PRFA) for the site using the authorities of the Oil Pollution Act (OPA).

On 5 August 2004, EPA conducted a site walk with RI DEM to observe site conditions, reviewed RI DEM response actions to date, and discussed the scope of planned response activities.

On 10 August 2004, RI DEM and its contractor conducted exploratory excavations behind the retaining wall to document subsurface conditions and to identify possible sources of the oil. The oil was tentatively identified as No. 4 or No. 6 oil. Free-phase oil was observed on the water table, possibly migrating from the area of the three large ASTs.

Site Activities

On 22 September 2004, START members Smith and Ackerman met EPA On-Scene Coordinator (OSC) Frank Gardner and RI DEM representative Donald Squires at the site. START personnel established a support zone and calibrated the air monitoring instruments, which included a photoionization detector (PID), a flame ionization detector (FID), a combustible gas indicator/oxygen meter (CGI/O_2), and a radiation meter (Micro R). Ambient conditions were documented in the site health and safety plan (HASP) as follows: PID = 0.0 units; FID = 1.0 units; CGI/O_2 = 0.0%/21.0%; Micro R = 7 microRoentgens per hour (μR/hr). The HASP was prepared as a separate document, entitled *Removal Program Site Health and Safety Plan for the Lonsdale Bleachery Site Preliminary Assessment/Site Investigation, Lincoln, Rhode Island,* dated September 2004. All personnel conducted a site walk-through, and OSC Gardner selected the asbestos sample locations.

Sampling activities were conducted in accordance with the document entitled *Sampling and Analysis Plan for the Lonsdale Bleachery Site, Lincoln, Rhode Island,* dated September 2004. In addition, site conditions were photodocumented (see Appendix B - Photodocumentation Log).

EPA and START initiated PA/SI activities at the site. EPA and START observed pipe wrap with suspected asbestos-containing material (ACM) in poor condition on overhead pipes leading to the former boiler room of the mill building, and on pipes and boilers within the boiler room. The boiler room no longer had a roof, and the ACM was exposed to the elements. START collected five bulk ACM samples (ACM-01 through ACM-05) from pipe wrap on piping leading into the boiler room and inside of the boiler room, for asbestos analysis by polarized light microscopy (PLM). Analytical results of the asbestos samples confirmed the presence of chrysotile asbestos at 35% on pipe wrap inside and leading into the boiler room of the mill building.

Unpaved roads extend around the mill building to the location of the three large, empty ASTs. The area to the north and west of the ASTs was wooded. The area to the south and east of the ASTs was level, and there was a 10-foot-high retaining wall along the Blackstone River. Oil seeps were observed on the foundation wall of the property and on the Blackstone River in the vicinity of the property. Due to the elevated water table, a sample of oil could not be collected from the seeps in the retaining wall. A sample of the oil-soaked snare boom (Oil-01) was collected and analyzed for

polychlorinated biphenyls (PCBs) and Oil Identification (ID). Analytical results confirmed that PCBs were not present in the oil sample; and the Oil ID results indicated the presence of weathered fuel oil and motor oil.

On 5 November 2004, EPA OSC Mike Nalipinski; EPA Office of Environmental Measurement and Evaluation (OEME) New England Regional Laboratory (NERL) personnel Dan Grantz, Lisa Thout, and Jerry Keefe; START members Ackerman, Jim Dick, and Scott Rose; and RI DEM representative Squires arrived on site to inspect the seepage of oil from the foundation retaining wall and to advance Geoprobe borings and install piezometers on the property. OEME and START personnel advanced eight soil borings (LB-B1 through LB-B8) and five piezometers (MW-B3 through MW-B6, and MW-B8) (see Appendix C - Boring Logs). During the installation, START observed a black, oily substance between 8 and 12 feet below ground surface. START collected samples from Boring Nos. LB-B4, -B5, and -B7, for Oil ID, PCB and volatile organic compound (VOC) analyses. Analytical results of the samples indicated the presence of three VOCs [2-butanone (MEK), 4-methyl-2-pentanone (MIBK), and n-butylbenzene]. No PCBs were detected.

On 4 January 2005, START retained Earth Exploration, Inc. (Earth Exploration), to perform test-pitting operations within the foundation area. Earth Exploration was unable to break through the concrete foundation. At the request of OSC Gardner, Earth Exploration relocated debris, steel beams, and the former excavation spoils pile to the western portion of the concrete foundation. During the relocation of the excavation spoils pile, START detected a strong petroleum odor emanating from the soil pile.

On 3 March 2005, EPA, OEME, START, and RI DEM personnel conducted a walk-through of the site. During the walk-through, an underground storage tank (UST) cap and fill pipe were observed adjacent to the smokestack. In addition, a strong oil odor was detected within the foundation area in the vicinity of the excavation pile.

On 19 through 22 April 2005, EPA, OEME, and START personnel arrived on site to advance additional Geoprobe® soil borings and monitoring wells through the existing foundation on site. OEME personnel advanced 10 soil borings (LB-B9 through LB-B18) and eight monitoring wells (MW-B9, MW-B11 through MW-B16, and MW-B18) on the property. START collected 10 soil boring samples (LB-B9 through LB-B18) from borings advanced by OEME personnel, and START collected three surface soil/source samples (LB-SP1 through LB-SP3) from the soil stockpile located on the foundation. START collected the soil boring samples and surface soil samples for Oil ID, PCB, and VOC analyses. Analytical results of the samples indicated the presence of 10 VOCs [1,2, 4-trimethylbenzene; 1,3,5-trimethylbenzene; ethylbenzene; m/p xylene; n-butylbenzene; n-propylbenzene; naphthalene; ortho-xylene; para-isopropyltoluene; and toluene]. No PCBs were detected.

Upon completion of all sampling activities, START completed chain-of-custody documentation for the samples (see Appendix D - Chain-of-Custody Record). Samples were delivered to OEME NERL, located in North Chelmsford, Massachusetts, for analysis. The oil sample, labeled Oil-01 and collected on 22 September 2004, was analyzed by START for PCBs under a separate chain-of-custody record.

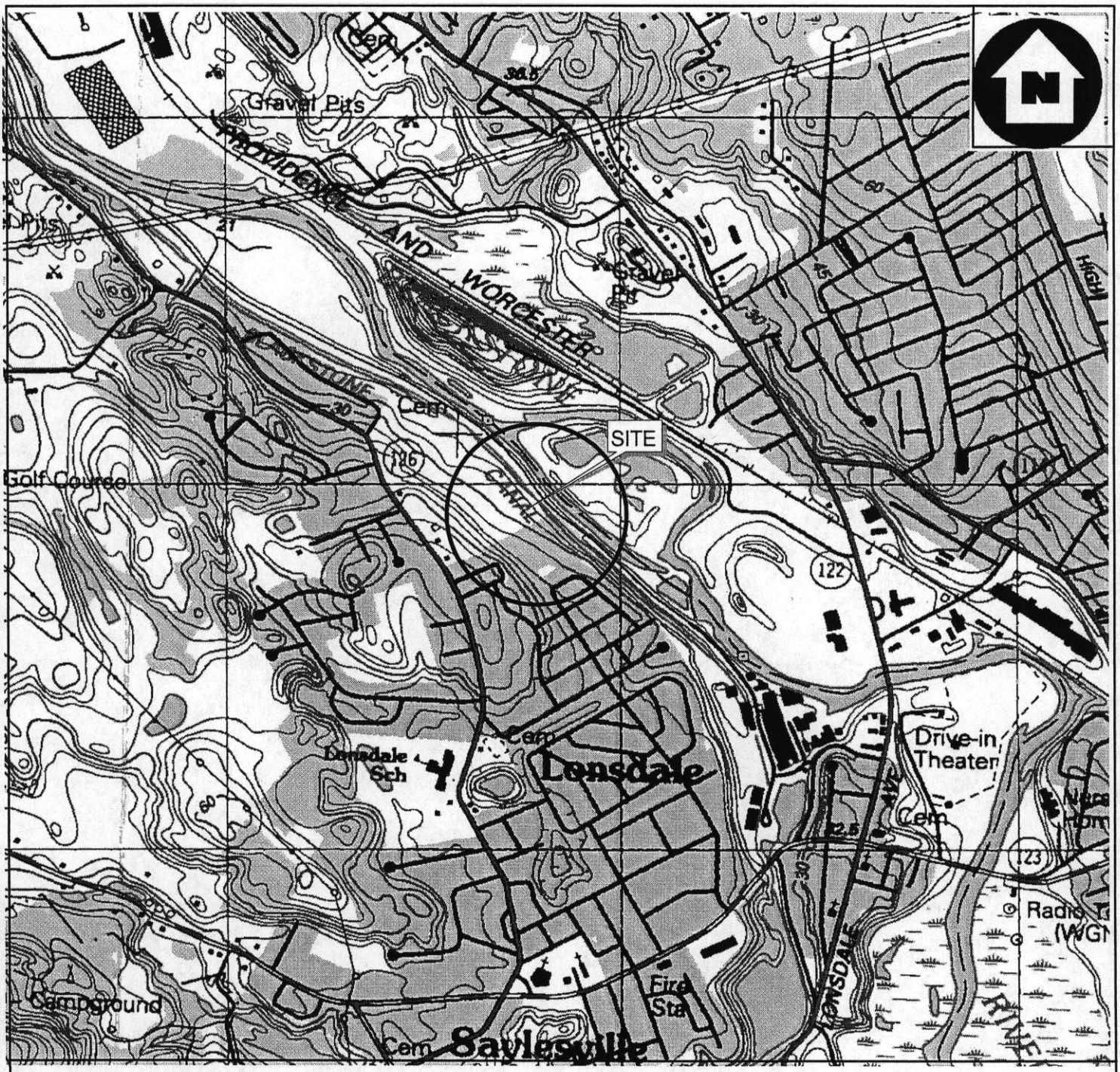
On 15 April 2005, START received the analytical data results from OSC Gardner (see Appendix E - Analytical Data Table).

III. Appendices

Appendix A

Figures

Site Location Map (Figure 1)
Site Diagram (Figure 2)



BASE MAP IS A PORTION OF THE FOLLOWING 7.5 X 15' U.S.G.S. QUADRANGLE(S):

ATTLEBOROUGH, MASSACHUSETTS-RHODE ISLAND. 1987.

0.7 0 0.7 Miles

1000 0 1000 2000 3000 4000 5000 Feet

0.4 0 0.4 0.8 Kilometers

QUADRANGLE LOCATION

SITE LOCATION MAP

LONSDALE BLEACHERY
CARRINGTON STREET
LINCOLN, RHODE ISLAND

WESTON SOLUTIONS
Restoring Resource Efficiency

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE:
05-07-0036	A. BENOIT	09/19/2005
FILE NAME: E:\ARC_APRS\START2\LONSDALEBLEACH.APR		FIGURE 1

SITE DIAGRAM

LONSDALE BLEACHERY SITE
CARRINGTON STREET
LINCOLN, RHODE ISLAND

WESTON SOLUTIONS
Restoring Resource Efficiency

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD NUMBER:	CREATED BY:	CREATED ON:
05-07-0036	D. MUZRALL	08/10/2005

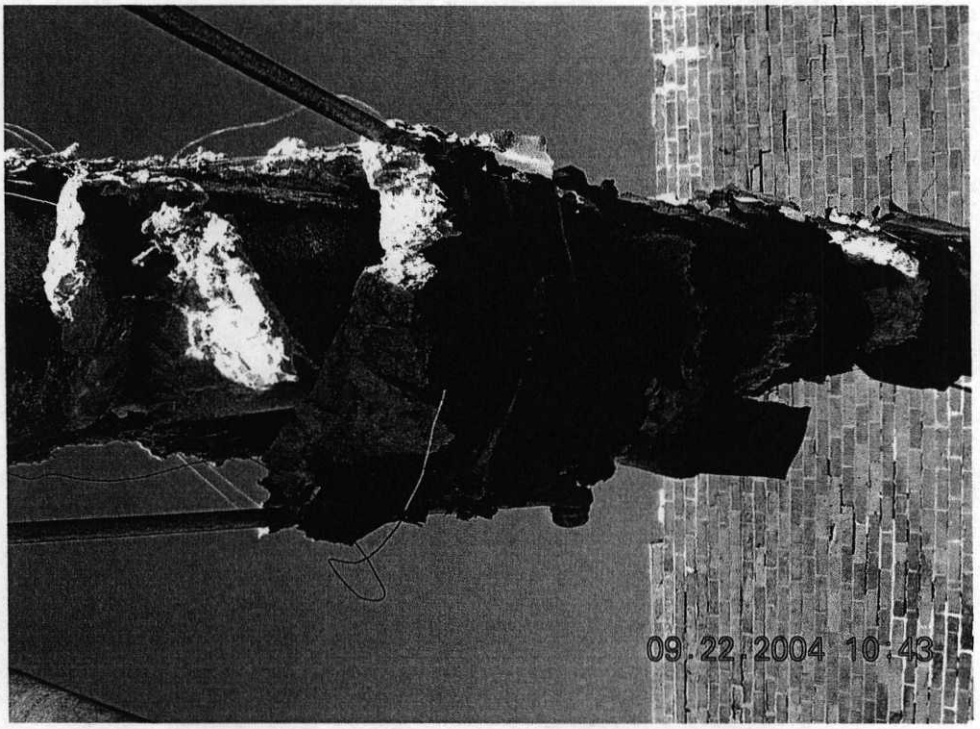
FILE LOCATION:	
E:\ARC_APRs\START2\ LONSDALEBLEACH.APR	FIGURE 2

Appendix B

Photodocumentation Log

PHOTOGRAPHY LOG SHEET
Lonsdale Bleachery • Lincoln, Rhode Island

TOP



SCENE: View of suspected asbestos-containing material (ACM) pipe wrap leading to the boiler room.

DATE: 22 September 2004
TIME: 1043 hours
PHOTOGRAPHY BY: M. Smith
CAMERA: Nikon CoolPix 3100

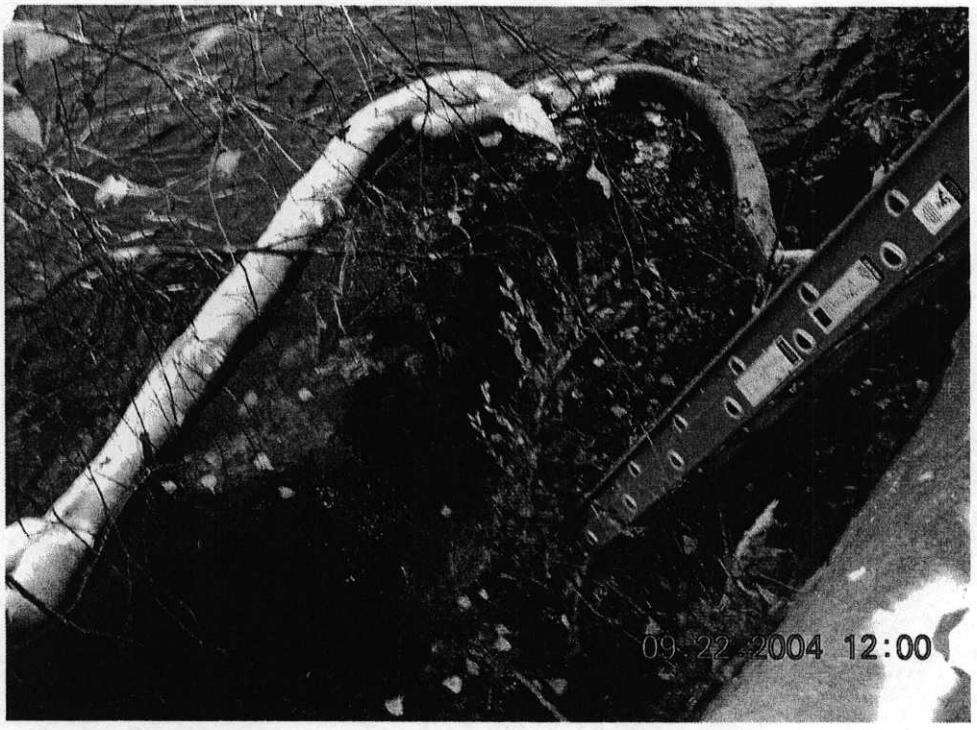
SCENE: View of the ACM on boiler and boiler pipe wrap in the boiler room. Photograph taken facing south.

DATE: 22 September 2004
TIME: 1049 hours
PHOTOGRAPHY BY: M. Smith
CAMERA: Nikon CoolPix 3100

PHOTOGRAPHY LOG SHEET
Lonsdale Bleachery • Lincoln, Rhode Island

SCENE: View of two aboveground storage tanks (ASTs). Photograph taken facing east.

DATE: 22 September 2004 **TIME:** 1043 hours
PHOTOGRAPHY BY: M. Smith **CAMERA:** Nikon CoolPix 3100



SCENE: View of the oil boom in the river.

DATE: 22 September 2004 **TIME:** 1200 hours
PHOTOGRAPHY BY: M. Smith **CAMERA:** Nikon CoolPix 3100

PHOTOGRAPHY LOG SHEET
Lonsdale Bleachery • Lincoln, Rhode Island

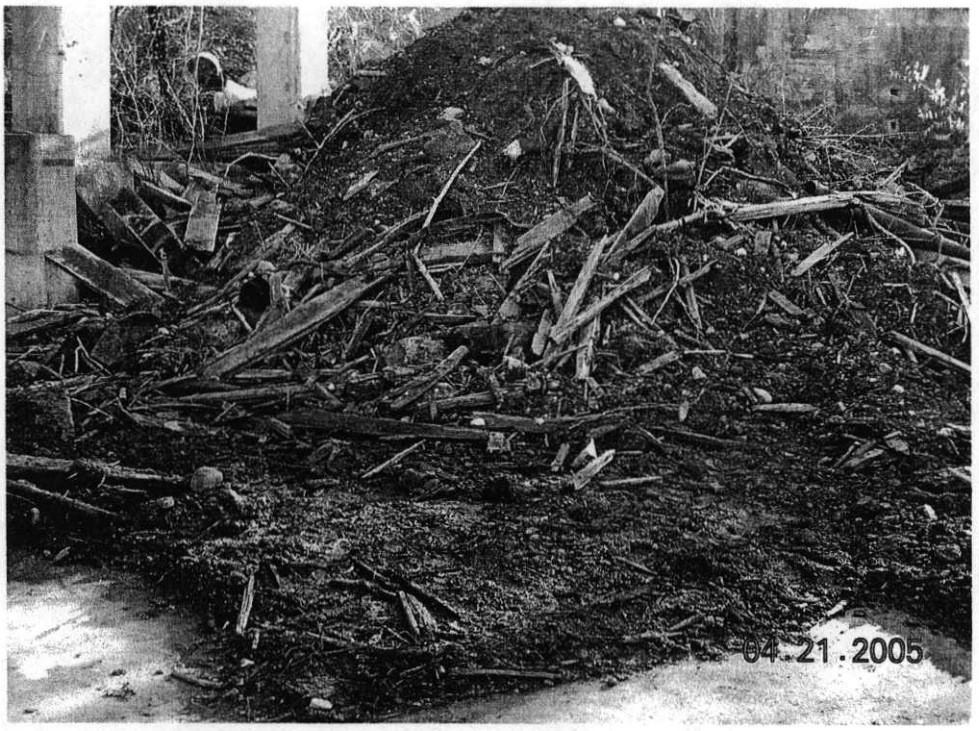
SCENE: View of the stockpiling activities conducted when attempts to excavate test pits failed. Photograph taken facing south.

DATE: 04 January 2005 **TIME:** 1118 hours
PHOTOGRAPHY BY: E. Ackerman **CAMERA:** Nikon CoolPix 3100

SCENE: View of the snow-covered soil pile staged on the foundation. Photograph taken facing southeast.

DATE: 03 March 2005 **TIME:** 1148 hours
PHOTOGRAPHY BY: J. Dick **CAMERA:** Nikon CoolPix 3100

PHOTOGRAPHY LOG SHEET
Lonsdale Bleachery • Lincoln, Rhode Island



SCENE: View of the soil pile staged on the foundation. Photograph taken facing southeast.

DATE: 21 April 2005 **TIME:** 1802 hours
PHOTOGRAPHY BY: P. Seward **CAMERA:** Nikon CoolPix 3100

SCENE: View of the rear of the building, including Lonsdale Bleachery Boring Number (No.) LB-B8 and Monitoring Well MW-B8. Photograph taken facing southeast.
DATE: 21 April 2005 **TIME:** 1814 hours
PHOTOGRAPHY BY: P. Seward **CAMERA:** Nikon CoolPix 3100

Appendix C

Boring Logs

WESTON SOLUTIONS

GEOPROBE TEST BORING LOG

BORING No. LB-B1

PROJECT: FORMER LONSDALE BLEACHERY | LOCATION: LINCOLN, RI | SHEET No. 1 OF 1

CLIENT: U.S. EPA REGION I START III | RIG: GEOPROBE | OPERATOR: S. ROSE

DATE/TIME STARTED: 11/05/04 0915 hrs | DATE/TIME FINISHED: 11/05/04 0940 hrs | ASSISTANT: J. DICK

SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE | LOG COMPLETED BY: E. ACKERMAN

DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
0		18"	Black, fine-to-coarse SAND, some clinkers and ash (fill) (0-4"). Orange-brown, fine-to-coarse SAND (fill) (4-18").
2			
4		48"	Grayish-black, fine-to-medium SAND (0-27"). Brown, medium-to-coarse SAND (27-35"). Brown, fine SAND and SILT (35-41"). Brown, medium-to-coarse SAND (41-48").
6			
8		48"	Brown, medium-to-coarse SAND (0-48").
10			
12			End of Boring @ 12 ft bgs.
14			
16			
18			
20			

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WESTON SOLUTIONS

GEOPROBE TEST BORING LOG

BORING No. LB-B2

PROJECT: FORMER LONSDALE BLEACHERY | LOCATION: LINCOLN, RI | SHEET No. 1 OF 1

CLIENT: U.S. EPA REGION I START III | RIG: GEOPROBE | OPERATOR: S. ROSE

DATE/TIME STARTED: 11/05/04 0945 hrs | DATE/TIME FINISHED: 11/05/04 1015 hrs | ASSISTANT: J. DICK

SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE | LOG COMPLETED BY: E. ACKERMAN

DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR In.	CLASSIFICATION
0		22"	Black, fine-to-coarse SAND, some clinkers and ash (fill) (0-7"). Brown, fine-to-coarse SAND (fill) (7-22").
4		44"	Grayish-black, fine-to-coarse SAND (fill) (0-20"). Brown, medium-to-coarse SAND (20-26"). Brown, fine SAND and SILT (26-34"). Brown, medium-to-coarse SAND (34-44").
8		13"	Gray, fine-to-medium SAND, some gravel (0-13").
12			End of Boring @ 12 ft bgs.
14			
16			
18			
20			

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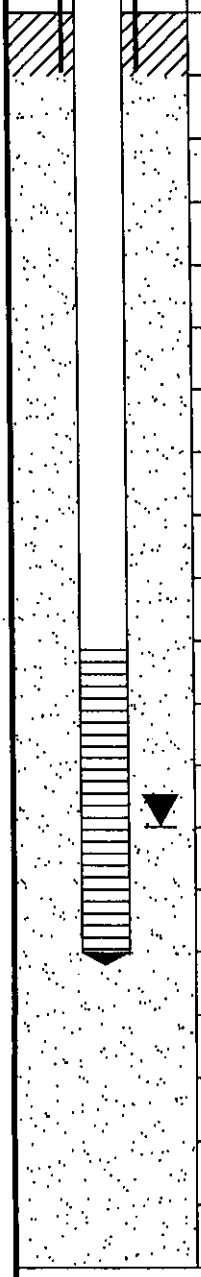
GEOPROBE TEST BORING LOG

BORING No. LB-B3

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 11/05/04 1020 hrs	DATE/TIME FINISHED: 11/05/04 1040 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: E. ACKERMAN



SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
	11"	Brown, fine-to-coarse SAND, some gravel and brick (fill) (0-11).
	10"	Brown, fine-to-coarse SAND, some brick (fill) (0-10").
	8"	Dark brown, fine SAND and SILT (0-8").
	18"	Brown, fine SAND and SILT (0-3"). Brown, coarse SAND and medium GRAVEL (3-18"). Water level @ 13 ft. End of boring @ 15 ft bgs.

WELL CONSTRUCTION

1) One 5-ft section of 0.5" Diameter slotted PVC screen from 10-15 ft bgs.
2) Twelve ft of 0.5" Diameter PVC riser (including 2 ft above ground).
3) Protective Casing
4) Native Soil and fill 1-15 ft.
5) Concrete or Grout 0-1 ft.

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GEOPROBE TEST BORING LOG

BORING No. LB-B4

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 11/05/04 1045 hrs	DATE/TIME FINISHED: 11/05/04 1115 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE	(MACROCORE)	LARGE BORE — LOG COMPLETED BY: E. ACKERMAN

SAMPLE # LAB # TIME	REC. % OR In.	CLASSIFICATION
	0"	No recovery.
	32"	Brown, medium-to-coarse SAND (0-3"). Brown, medium-to-coarse SAND, some ash and clinkers (fill) (3-17"). Black, medium-to-coarse SAND, with little oil (17-32"). Water level @ 7-ft.
LB-B4 D11910 1230 hours VOC, PCB, Oil-ID	24"	Black oily coarse SAND.
		End of Boring @ 15 ft bgs.

WELL CONSTRUCTION

1) One 5-ft section of 0.5" Diameter slotted PVC screen from 10-15 ft bgs.
2) Twelve ft of 0.50" Diameter PVC riser (including 2 ft above ground).
3) Protective Casing.
4) Native Soil and Fill 1-15 ft.
5) Grout 0-1 ft.

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GEOPROBE TEST BORING LOG

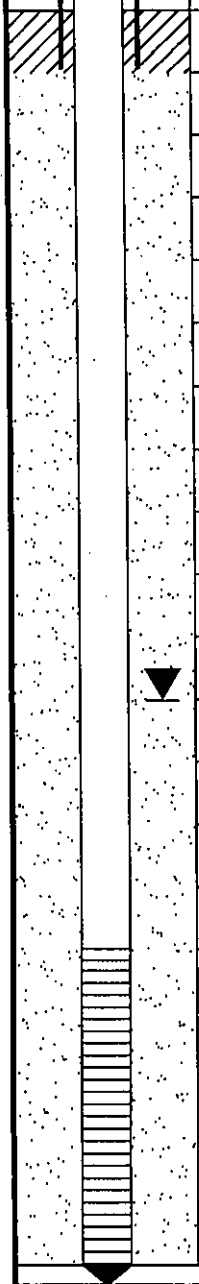
BORING No. LB-B5

PROJECT: FORMER LONSDALE BLEACHERY | LOCATION: LINCOLN, RI | SHEET No. 1 OF 1

CLIENT: U.S. EPA REGION I START III | RIG: GEOPROBE | OPERATOR: S. ROSE

DATE/TIME STARTED: 11/05/04 1130 hrs | DATE/TIME FINISHED: 11/05/04 1215 hrs | ASSISTANT: J. DICK

SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE | LOG COMPLETED BY: E. ACKERMAN



SAMPLE # LAB # TIME	REC. % OR In.	CLASSIFICATION
	24"	Grayish-brown, coarse SAND, some ash and clinkers (Fill) (0-24").
	24"	Grayish-brown, coarse SAND, some clinkers (Fill) (0-24").
	23"	Grayish-brown, coarse SAND (0-8"). Dark brown, fine SAND (8-12"). Black, fine SAND, with oil (12-23"). Water Level @ 11 ft.
LB-B5 D11911 1330 hours VOC, PCB, Oil-ID	26"	Black, coarse SAND, with little oil (0-18"). Coarse Sand Saturated with Oil (18-20") Gray, coarse SAND, with oil (20-26").
	30"	Gray, coarse SAND (0-11"). Brownish-gray, coarse SAND (11-26"). Brownish-gray, coarse SAND, some gravel (26-30"). End of boring @ 20 ft bgs.

WELL CONSTRUCTION

1) One 5-ft section of 0.5" Diameter slotted PVC screen from 15 - 20 ft bgs.
2) Seventeen ft of 0.50" Diameter PVC riser (including 2 ft above ground).
3) Protective Casing.
4) Native Soil and Fill 1-20 ft.
5) Grout 0-1 ft.

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GEOPROBE TEST BORING LOG

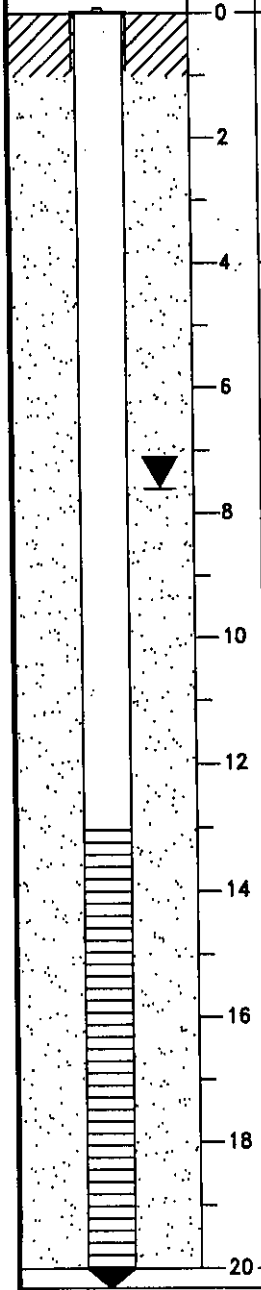
BORING No. LB-B6

PROJECT: FORMER LONSDALE BLEACHERY | LOCATION: LINCOLN, RI | SHEET No. 1 OF 1

CLIENT: U.S. EPA REGION I START III | RIG: GEOPROBE | OPERATOR: S. ROSE

DATE/TIME STARTED: 11/05/04 1230 hrs | DATE/TIME FINISHED: 11/05/04 1315 hrs | ASSISTANT: J. DICK

SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE | LOG COMPLETED BY: E. ACKERMAN



DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
0		0"	No recovery.
4		24"	Brown, medium-to-coarse SAND (Fill) (0-16"). Brownish-gray, coarse SAND (Fill) (16-20"). Clinkers and ash (Fill) (20-24"). Dark brown, coarse SAND, with some clinkers (Fill) (0-16"). Water level @ 7.6 ft
8		12"	Brown, coarse SAND and GRAVEL, some clinkers (Fill) (0-2"). Brown, fine SAND, some silt (2-10"). Black, coarse SAND, with oil (10-12").
12		28"	Black, fine SAND and SILT, with oil (0-4"). Gray, coarse SAND (4-28").
16		10"	Brown, fine-to-coarse SAND (0-10").
20			End of boring @ 20 ft bgs.

WELL CONSTRUCTION

1) One 5-ft section of 0.5" Diameter slotted PVC from 15 - 20 ft bgs.
2) Seventeen ft of 0.50" Diameter PVC riser (including 2 ft above ground).
3) Protective Casing.
4) Native Soil and Fill 1-20 ft.
5) Grout 0-1 ft.

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GEOPROBE TEST BORING LOG

BORING No. LB–B7

PROJECT: FORMER LONSDALE BLEACHERY LOCATION: LINCOLN, RI SHEET No. 1 OF 1

CLIENT: U.S. EPA REGION I START III RIG: GEOPROBE OPERATOR: D. GRANZ

DATE/TIME STARTED: 11/05/04 1330 hrs DATE/TIME FINISHED: 11/05/04 1415 hrs ASSISTANT: L. THOUT

SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE LOG COMPLETED BY: E. ACKERMAN

DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
0		0"	No recovery.
2			
4		21"	Grayish–black, fine–to–coarse SAND, some clinkers and ash (fill) (0–9"). Brown, coarse SAND (9–18"). Brown, coarse SAND, with oil (18–21").
6			
8	LB–B7 D11912 1500 hours VOC, PCB, Oil–ID	30"	Brown, coarse SAND, with oil (0–30").
10			
12			End of Boring @ 12 ft bgs.
14			
16			
18			
20			

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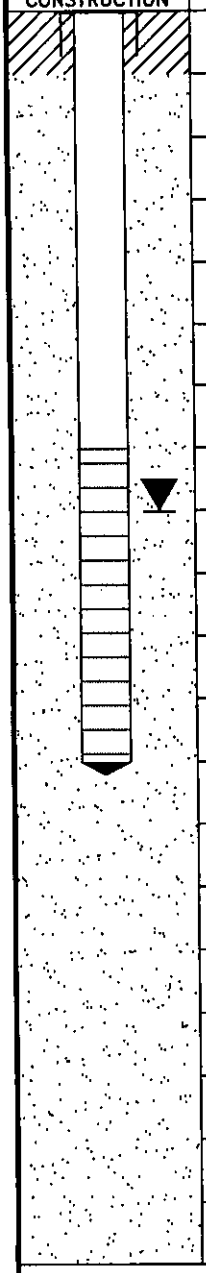
GEOPROBE TEST BORING LOG

BORING No. LB-B8

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: J. DICK
DATE/TIME STARTED: 11/05/04 1430 hrs	DATE/TIME FINISHED: 11/05/04 1515 hrs	ASSISTANT: S. ROSE
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: E. ACKERMAN



DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
0		19"	Grayish-brown, fine-to-medium SAND (0-7"). Brown, coarse SAND (7-19").
4		14"	Gray, fine-to-coarse SAND (0-14"). Water level @ 8 ft.
8		12"	Brown, fine-to-coarse SAND, with some oil (0-12"). End of Boring @ 12 ft bgs.
12			
20			

WELL CONSTRUCTION

1) One 5-ft section of 0.5" Diameter slotted PVC screen from 7 -12 ft bgs.
2) Nine ft of 0.50" Diameter PVC riser.
3) Flush mount.
4) Native Soil 1-12 ft.
5) Grout 0-1 ft.

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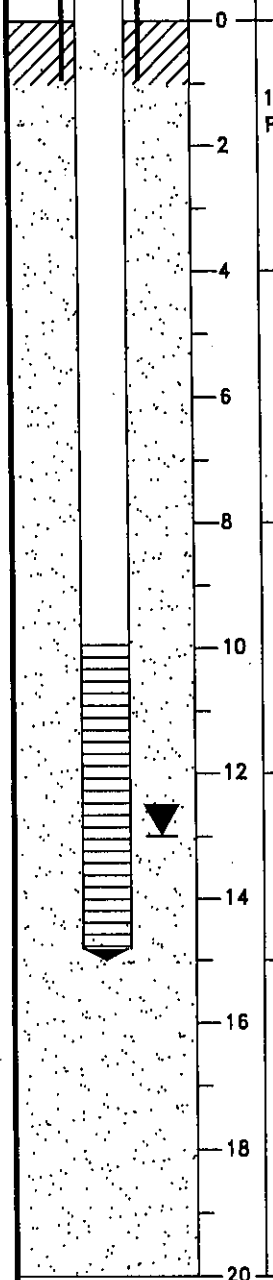
GEOPROBE TEST BORING LOG

BORING No. LB-B9

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 4/20/05 0945 hrs	DATE/TIME FINISHED: 4/20/05 1315 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: J. DICK



SAMPLE # LAB # TIME	REC. % OR In.	CLASSIFICATION
LB-B9 D10149 1105 hours PCB, Oil-ID	22"	Orange Coarse Sand (Fill) (0-4). Black, fine-to-coarse SAND, with Oil (Coal Tar) (4-6). Gray Coarse Ash (6-9). Orange to light Brown SAND (Fill) (9-18). Black, fine-to-coarse SAND with Oil (Coal Tar) (18-20). Orange to light brown Sand (Fill) (20-22).
	27"	Orange to light Brown Sand (Fill) (0-3). Black, fine-to-coarse SAND, with Oil (Coal Tar) (3-4). Gray Fine Sand and Silt (4-6). Orange to Brown Coarse SAND with some Large Cobble (Coal Fragments) (6-13). Brown Fine SAND and Silt (13-17). Orange to brown Medium Sand with some Silt and Medium Cobble (Coal Fragments) (17-27)
	4"	Brown, Coarse SAND with some Large Gravel (0-4").
		End of boring @ 9.5 ft bgs.

WELL CONSTRUCTION

1) One 5-ft section of 0.5" Diameter slotted PVC screen from 4.5-9.5 ft bgs.

2) Six ft of 0.5" Diameter PVC riser (including 2 ft above ground).

3) Protective Casing

4) Native Soil and fill 1-9.5 ft.

5) Concrete or Grout 0-1 ft.

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WESTON SOLUTIONS

GEOPROBE TEST BORING LOG

BORING No. LB-B10

PROJECT: FORMER LONSDALE BLEACHERY | LOCATION: LINCOLN, RI | SHEET No. 1 OF 1

CLIENT: U.S. EPA REGION I START III | RIG: GEOPROBE | OPERATOR: D. GRANTZ

DATE/TIME STARTED: 4/20/05 1715 hrs | DATE/TIME FINISHED: 4/20/05 1730 hrs | ASSISTANT: L. THOUT

SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE | LOG COMPLETED BY: J. DICK

DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR In.	CLASSIFICATION
0	LB-B10 D10150 1730 hours PCB, Oil-ID	6"	Concrete (0-6"). Gray Fine Sand and Silt and small Cobble (6-10"). Black Coal Tar (10-12).
4		48"	Grayish-black, fine-to-medium SAND (0-27"). Brown, medium-to-coarse SAND (27-35"). Brown, fine SAND and SILT (35-41"). Brown, medium-to-coarse SAND (41-48").
8		48"	Brown, medium-to-coarse SAND (0-48").
12			End of Boring @ 12 ft bgs.
20			

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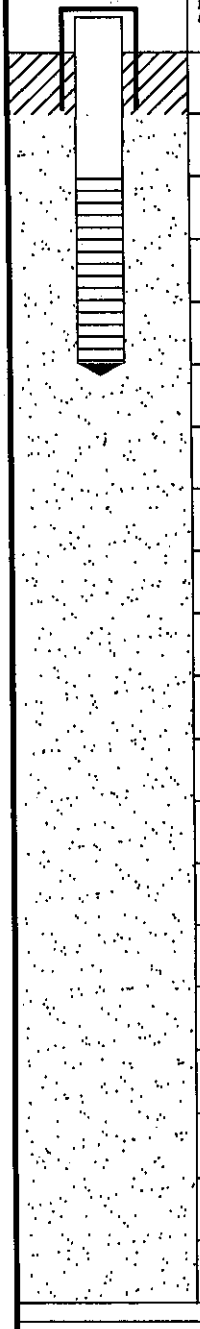
GEOPROBE TEST BORING LOG

BORING No. LB-B11

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 4/20/05 1550 hrs	DATE/TIME FINISHED: 4/20/05 1610 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: J. DICK



DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR In.	CLASSIFICATION
0	LB-B11 D10151 1550 hours PCB, Oil-ID	19"	Concrete Foundation (0-6). Gray fine-to-coarse SAND, with some fine-to-coarse gravel (6-10). Gray fine-to-coarse SAND, with some fine-to-coarse gravel with oil (10-25)
2			
4			Refusal (4'8").
6			
8			
10			
12			
14			
16			
18			
20			

WELL CONSTRUCTION

1) One 56-in section of 0.5" Diameter slotted PVC screen from 0-56 in bgs.

2) Two ft of 0.5" Diameter PVC riser (including 2 ft above ground).

3) Protective Casing

4) Native Soil and fill 6-25 in.

5) Concrete or Grout 0-1 ft.

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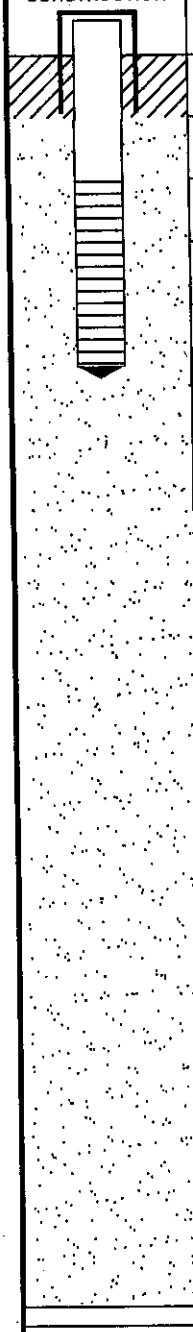
GEOPROBE TEST BORING LOG

BORING No. LB-B12

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 4/20/05 1630 hrs	DATE/TIME FINISHED: 4/20/05 1700 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: J. DICK

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
	0		23"	Concrete Foundation (0–6). Gray coarse SAND, with some fine-to-medium gravel (6–20). Medium-to-coarse SAND, with some medium-to-large gravel with oil (20–23)
	2			
	4			
		LB-B12 D05151 1700 hours PCB, OII-ID		Gray fine-to-medium Sandwith little medium Cobble and Oil. Refusal (4'9").
	6			
	8			
	10			
	12			
	14			
	16			
	18			
	20			

WELL CONSTRUCTION

1) One 56-in section of 0.5" Diameter slotted PVC screen from 0–56 in bgs.

2) Two ft of 0.5" Diameter PVC riser (including 2 ft above ground).

3) Protective Casing

4) Native Soil and fill 6–25 in.

5) Concrete or Grout 0–1 ft.

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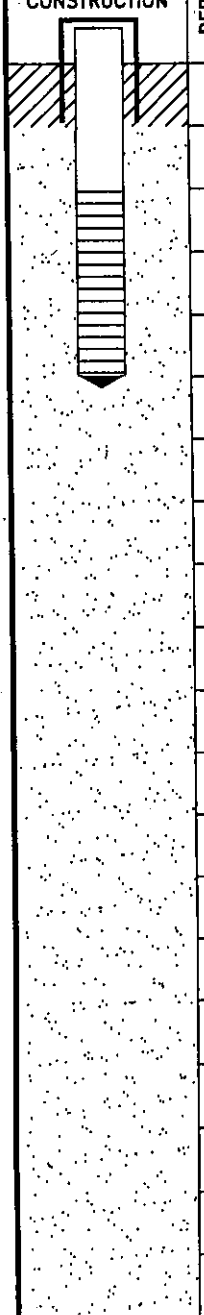
GEOPROBE TEST BORING LOG

BORING No. LB-B13

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION 1 START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 4/20/05 1445 hrs	DATE/TIME FINISHED: 4/20/05 1500 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE	(MACROCORE) LARGE BORE	LOG COMPLETED BY: J. DICK



DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
0	LB-B13 D05152 1500 hours PCB, OII-ID, VOC	19"	Concrete Foundation (0-6). Gray to Black, fine-to-course SAND, with some small to large gravel (6-25). Oil (10 - 20).
2			
4			Refusal (5 ft).
6			
8			
10			
12			
14			
16			
18			
20			

WELL CONSTRUCTION

1) One 56-in section of 0.5" Diameter slotted PVC screen from 0-5 ft bgs.
2) Two ft of 0.5" Diameter PVC riser (including 2 ft above ground).
3) Protective Casing
4) Native Soil and fill 6-10 in.
5) Concrete or Grout 0-1 ft.

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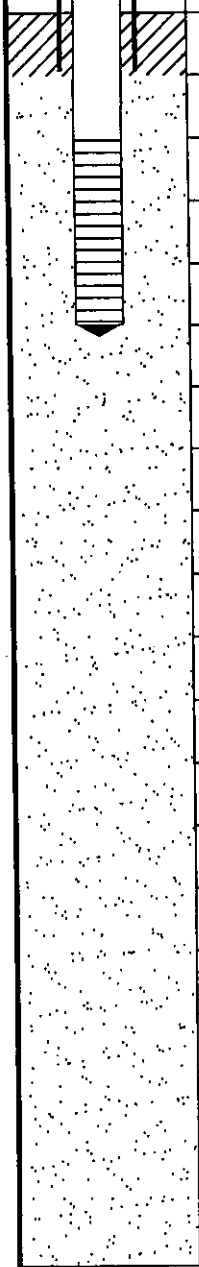
GEOPROBE TEST BORING LOG

BORING No. LB-B14

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 4/20/05 1315 hrs	DATE/TIME FINISHED: 4/20/05 1400 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: J. DICK



DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
0	LB-B14 D05153 1400 hours PCB, OII-ID,	14"	Concrete Foundation (0-6). Orange to Brown, medium-to-course SAND, with some small to medium cobble (6-10). Oil (10 - 20).
2			
4			Refusal (5 ft).
6			
8			
10			
12			
14			
16			
18			
20			

WELL CONSTRUCTION

1) One 5-ft section of 0.5" Diameter slotted PVC screen from 0-5 ft bgs.

2) Two ft of 0.5" Diameter PVC riser (including 2 ft above ground).

3) Protective Casing

4) Native Soil and fill 6-10 in.

5) Concrete or Grout 0-1 ft.

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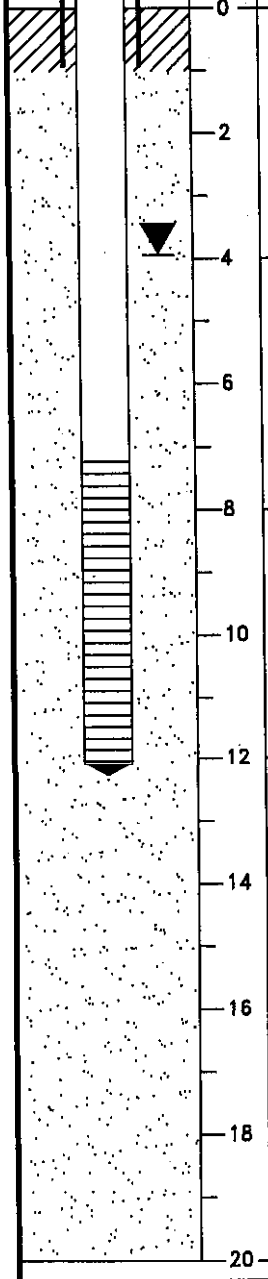
GEOPROBE TEST BORING LOG

BORING No. LB-B15

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 04/21/05 1050 hrs	DATE/TIME FINISHED: 04/21/05 1130 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: J.DICK



SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
	21"	Brown, fine-to-medium SAND, little fine cobble and trace coal fragments (clinkers)(0-6"). Orange-brown, fine-to-medium SAND (6-8"). Brown, fine-to-medium SAND, trace coal fragments (clinkers) (8-10"). Brown, fine SAND, little coal fragments (clinkers) (10-15"). Reddish-brown, fine-to-medium SAND, some medium to coarse gravel and trace coal fragments (clinkers) (15-21").
	21"	Brown, fine-to-medium SAND, some fine gravel, moist (0-4"). Brown-to-black, medium-to-coarse SAND, and fine-to-medium coal fragments (clinkers) (4-15"). Light brown, fine-to-medium SAND, little fine gravel (15-19"). Light brown, medium-to-coarse SAND, fine-to medium coal fragments (19-21").
LB-B15 D05154 1130 hours PCB/Oil ID	27"	Dark brown, medium-to-coarse SAND, some fine-to-medium gravel (0-8"). Grey coarse GRAVEL, and OIL (8-20"). Gray fine SAND and SILT, little medium-to-coarse gavel, little oil (20-27"). End of boring @ 12 ft bgs. Water encountered at 4' bgs.
		MW LB-B15 installed 12' bgs.

WELL CONSTRUCTION

1) ☐ One 5-ft section of 0.5" Diameter slotted PVC screen from 12-7 ft bgs.
2) Ten ft of 0.5" Diameter PVC riser (including 3 ft above ground).
3) Protective Casing
4) ▨ Native Soil and fill 1-12 ft.
5) ▨ Concrete or Grout 0-1 ft.

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GEOPROBE TEST BORING LOG

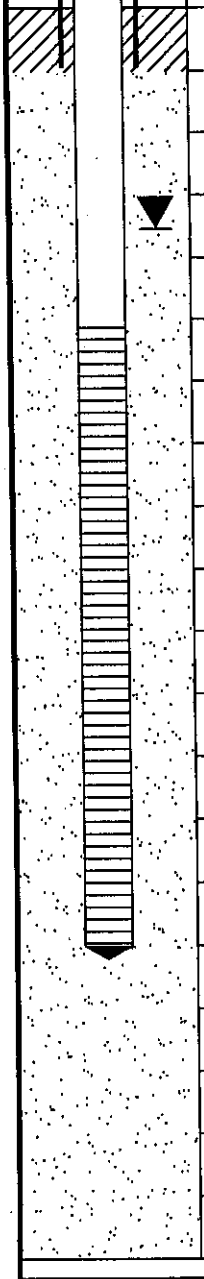
BORING No. LB-B16

PROJECT: FORMER LONSDALE BLEACHERY | LOCATION: LINCOLN, RI | SHEET No. 1 OF 1

CLIENT: U.S. EPA REGION I START III | RIG: GEOPROBE | OPERATOR: D. GRANZ

DATE/TIME STARTED: 04/21/05 1320 hrs | DATE/TIME FINISHED: 04/21/05 1545 hrs | ASSISTANT: L. THOUT

SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE | LOG COMPLETED BY: J. DICK



SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
	21"	Brown, fine-to-medium SAND, (0-5"). CONCRETE, (5-8"). Reddish brown-to-black, fine-to-medium SAND, medium cobble (coal) (8-15"). COAL (15-17"). Brown, fine-to-medium SAND and medium COBBLE (coal), trace oil (17-21").
	39"	Dark brown fine-to-medium SAND, trace medium gravel, trace organics (0-14"). Brown fine SAND, trace fine-to-medium gravel (14-39").
	23"	Brown, fine-to-medium SAND (0-5"). Brown, fine-to-coarse SAND, some brick fragments (5-13"). Brown, fine-to-coarse SAND, some brick fragments (13-23").
LB-B16 D05155 1440 hours PCB, Oil-ID	29"	Grey, coarse SAND, some fine-to-medium GRAVEL, little medium cobble, little oil (0-9"). Fine-to-coarse gravel, little fine-tomedium cobble, little coarse sand and oil (9-15"). Grey, coarse SAND (15-29"). End of boring @ 15 ft bgs. Water @ 3.5' bgs.

WELL CONSTRUCTION

1) Two 5-ft section of 0.5" Diameter slotted PVC screen from 15-5 ft bgs.

2)Eight ft of 0.5" Diameter PVC riser (including 3 ft above ground).

3)Protective Casing

4) Native Soil and fill 1-15 ft.

5) Concrete or Grout 0-1 ft.

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GEOPROBE TEST BORING LOG

BORING No. LB-B17

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 4/21/05 1630 hrs	DATE/TIME FINISHED: 4/21/05 1710 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE	(MACROCORE)	LARGE BORE — LOG COMPLETED BY: J. DICK

DEPTH (FEET)	SAMPLE # LAB # TIME	REC. % OR In.	CLASSIFICATION
0		29"	Black, fine-to-medium SAND, some little fine-to-medium Gravel (0-12). Brown, fine-to-medium SAND with some medium-to-coarse gravel and trace Brick (12-29).
2			
4	LB-B17 D10156 1710 hours PCB, OII-ID	23"	Brown, fine-to-medium SAND with some medium-to-coarse gravel (0-11"). Black, Fine-to-medium SAND with trace fine cobble (11-23"). Moist (20-23").
6			
8		26"	Brown-to-light brown, fine-to-medium SAND, trace fine gravel (0-12"). Light brown, fine-to-coarse SAND, little fine gravel (12-26").
10			
12			End of Boring @ 12 ft bgs.
14			
16			
18			
20			

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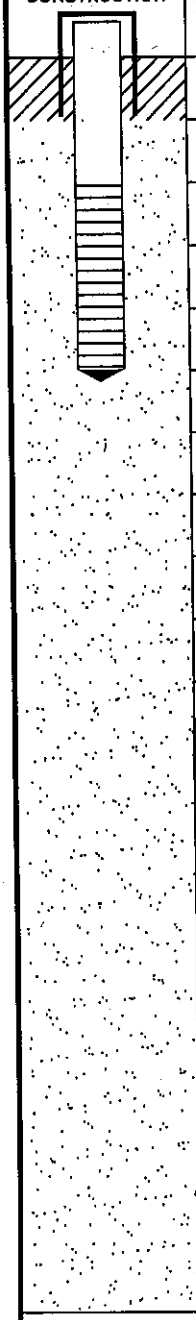
GEOPROBE TEST BORING LOG

BORING No. LB-B18

PROJECT: FORMER LONSDALE BLEACHERY	LOCATION: LINCOLN, RI	SHEET No. 1 OF 1
CLIENT: U.S. EPA REGION I START III	RIG: GEOPROBE	OPERATOR: D. GRANZ
DATE/TIME STARTED: 4/20/05 1800hrs	DATE/TIME FINISHED: 4/20/05 1830 hrs	ASSISTANT: L. THOUT
SOIL BORING METHOD (CIRCLE ONE): DUAL TUBE (MACROCORE) LARGE BORE		LOG COMPLETED BY: J. DICK



SAMPLE # LAB # TIME	REC. % OR in.	CLASSIFICATION
	27"	Concrete Foundation (0–6). Light brown–to–gray medium–to–coarse SAND with Fine Gravel (6–18). Brown Fine Sand and Silt (18–21). Black Fine–to–Medium SAND, with little Fine–to–Medium Gravel with little Fine Cobble with oil (21–27).
LB–B18 D10065 1830 hours PCB, Oil–ID		Fine–to–medium Gravel with Oil. Refusal (4'10").

WELL CONSTRUCTION

1) ☐ One 56–inch section of 0.5" Diameter slotted PVC screen from 0–56 –inches bgs.

2) Two ft of 0.5" Diameter PVC riser (including 2 ft above ground).

3) Protective Casing

4) ▒ Native Soil and fill 6–27 in.

5) ▨ Concrete or Grout 0–1 ft.

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Appendix D

Chain-of-Custody Record

USEPA Contract Laboratory Program
Generic Chain of Custody

PN: 04090042

Reference Case
Client No: Former Lonsdale Bleachery
SDG No: Lincoln, RI

Date Shipped:	9/22/2004
Carrier Name:	Hand Delivered
Airbill:	
Shipped to:	New England Regional Laboratory 11 Technology Drive North Chelmsford MA 01863 (888) 372-7341

Chain of Custody Record

	Relinquished By (Date / Time)	Received By (Date / Time)
1	MSmith 9/22/04/1610	9/22/04 16:10
2		
3		
4		

Sampler Signature: MSmith

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		FOR LAB USE ONLY Sample Condition On Receipt
D16294	Oil(High only)/ Eric Ackerman	H/G	Chorinated (21), Oil ID (21), PCB (21)	(Ice Only) (3) (1) no	Oil-01	S: 9/22/2004	11:43	
D16295	Other (Unknown)/ Mandy Smith	M/G	ASBEST (21)	(Ice Only) (1)	ACM-01	S: 9/22/2004	10:47	
D16296	Other (Unknown)/ Mandy Smith	M/G	ASBEST (21)	(Ice Only) (1)	ACM-02	S: 9/22/2004	10:49	
D16297	Other (Unknown)/ Mandy Smith	M/G	ASBEST (21)	(Ice Only) (1)	ACM-03	S: 9/22/2004	10:56	
D16298	Other (Unknown)/ Mandy Smith	M/G	ASBEST (21)	(Ice Only) (1)	ACM-04	S: 9/22/2004	11:00	
D16299	Other (Unknown)/ Mandy Smith	M/G	ASBEST (21)	(Ice Only) (1)	ACM-05	S: 9/22/2004	11:09	

* Send sample results to OSC Frank Gardner (617) 918-1278

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): Eric D. Ackerman	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

ASBEST = Asbestos, Chorinated = Chlorinated Solvents, Oil ID = Oil ID/GC Fingerprint, PCB = PCBs (AROCLORS)

TR Number: 1-115199068-092204-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
~~Send Copy to: Sample Management Office, Attn: Heather Bauer, GSC, 16000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602~~ ms.

CHAIN OF CUSTODY RECORD
WESTON START REGION I
Field Screening Activities

Matrix		Sample Preservation
1. Soil	7. Drinking Water	N. Not Preserved
2. Sediment	8. Air	1. Ice only
3. Waste/Debris	9. Wipes	2. HCl
4. Oil	10. Other (Specify)	3. Other (specify)
5. Surface Water		
6. Groundwater		

Project Name: Former Lonsdale Bleachery

TDD No.: 04-08-0003 TASK No.: 8382

Samplers: (Signatures) M Smith

Collect Date 20 04	Time	Sample Type C-comp G-grab	Sample Matrix (Enter box #)	Sample Pres. (Enter box #)	Station Location	No. & Type Containers	Screening Analysis: PCBs			Extr Wt (g)	Extr Date 20 04	Remarks
9/22	1143	G	Oil	1	OIL-01	1 - ~~40ml vial~~ 8oz jar ms	X			0.04	9/23	
NA	NA	NA				NA						Lab Duplicate Only

Relinquished by: (Signature) M Smith

Date: 9/22/04

Time: 1600

Received for Laboratory by: (signature) John C Benton

Date: 9/22/04

Time: 1600

Sample Prep: (initials) [illegible]

Note: Shaded areas to be completed by analytical personnel

Weston Solutions, Inc,

P:\START\AS\FIELD COC.123

PN:0411 0029.

USEPA
Generic Chain-of-Custody
Generic Chain of Custody

LONSDALE BLEACHERY

Reference Case
Client No:
SDG No: L

Date Shipped:	11/15/2004
Carrier Name:	Hand Delivered
Airbill:	
Shipped to:	New England REgional Laboratory 11 Technology Drive North Chelmsford MA 01863 (617) 918-8333

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1 Eric A. Ackerman	11/16/04	[signature] TOSAT	11/16/04 16:06
2			
3			
4			

Sampler Signature: Eric A. Ackerman

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		FOR LAB USE ONLY Sample Condition On Receipt
D11910	Soil (>12")/ Eric Ackerman	H/C	OIL ID (21), PCB (21), VOC (21)	D11910 (Ice Only) (3)	Lonsdale Bleachery Boring No. 4	S: 11/5/2004	12:30	OIL PRODUCT
D11911	Soil (>12")/ Eric Ackerman	H/C	OIL ID (21), PCB (21), VOC (21)	D11911 (Ice Only) (3)	Lonsdale Bleachery Boring No. 5	S: 11/5/2004	13:30	
D11912	Soil (>12")/ Eric Ackerman	H/C	OIL ID (21), PCB (21), VOC (21)	D11912 (Ice Only) (3)	Lonsdale Bleachery Boring No. 7	S: 11/5/2004	15:00	

Shipment for Case Complete?N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

OIL ID = Oil Identification, PCB = PCBs (AROCLORS), VOC = Volatile Organic Compounds

TR Number: 1-082793569-111504-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222 Attention: Willie Wong
(CC: to Heather Bauer)

USEPA
Lonsdale Bleachery Site
Generic Chain of Custody

Reference Case
Client No:
SDG No: L

Date Shipped:	4/21/2005
Carrier Name:	Hand-Delivered
Airbill:	Not Applicable
Shipped to:	New England Regional Laboratory 11 Technology Drive North Chelmsford MA 01863 (617) 918-8333

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1	04/21/05 1750		4/21/05 1751
2			
3			
4			

Sampler Signature:

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	FOR LAB USE ONLY Sample Condition On Receipt
D05151	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7)	6 (Ice Only) (1)	LB-B12	S: 4/20/2005 17:00	
D05152	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7), PER_SOL (7), TCL VOA (7)	7 (Ice Only), 8 (Ice Only), 9 (CH3OH) (3)	LB-B13	S: 4/20/2005 15:00	
D05153	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7)	10 (Ice Only) (1)	LB-B14	S: 4/20/2005 14:00	
D05154	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7)	11 (Ice Only) (1)	LB-B15	S: 4/21/2005 11:30	
D05155	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7)	12 (Ice Only) (1)	LB-B16	S: 4/21/2005 14:40	
D05156	Soil (>12")/ James Dick	M/G	PCB/OIL ID (7)	13 (Ice Only) (1)	LB-B17	S: 4/21/2005 17:10	
D10065	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7)	14 (Ice Only) (1)	LB-B18	S: 4/20/2005 18:30	
D10066	Soil (0"-12")/ Peter Seward	H/G	PCB/OIL ID (7)	15 (Ice Only) (1)	LB-SP1	S: 4/20/2005 13:43	
D10067	Soil (0"-12")/ Peter Seward	H/G	PCB/OIL ID (7)	16 (Ice Only) (1)	LB-SP2	S: 4/20/2005 13:49	
D10068	Soil (0"-12")/ Peter Seward	H/G	PCB/OIL ID (7)	17 (Ice Only) (1)	LB-SP3	S: 4/20/2005 13:49	

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
	D10149	Peter Seward		Custody Seal Intact? ___ Shipment Iced? ___

Analysis Key: Concentration: L = Low, M = Low/Medium, H = High Type/Designate: Composite = C, Grab = G

PCB = PCBs (AROCLORS), PCB/OIL ID = Polychlorinated Biphenyls / Oil Ident, PER_SOL = Percent Solids, TCL VOA = Volatiles

R Number: 1-043543498-042105-0001

R provides preliminary results. Requests for preliminary results will increase analytical costs.
end Copy to: U.S. EPA OSC Frank Gardner; Phone (617) 918-1278; Fax (617) 918-0278

LABORATORY COPY

EPA

USEPA
Lonsdale Bleachery Site
Generic Chain of Custody

Reference Case
Client No:
SDG No:
L

Date Shipped:	4/21/2005
Carrier Name:	Hand-Delivered
Airbill:	Not Applicable
Shipped to:	New England Regional Laboratory 11 Technology Drive North Chelmsford MA 01863 (617) 918-8333

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1	04/21/05 1330		4/21/05 1751
2			
3			
4			

Sampler Signature:

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	FOR LAB USE ONLY Sample Condition On Receipt
D10069	PE Soil/ James Dick	M/G	PCB (7)	1 (Ice Only) (1)	PE-TT2176	S: 4/20/2005	11:05
D10149	Soil (>12")/ James Dick	M/G	PCB/OIL ID (7)	2 (Ice Only), 3 (Ice Only) (2)	LB-B9	S: 4/20/2005	11:05
D10150	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7)	4 (Ice Only) (1)	LB-B10	S: 4/20/2005	17:30
D10151	Soil (>12")/ James Dick	H/G	PCB/OIL ID (7)	5 (Ice Only) (1)	LB-B11	S: 4/20/2005	15:50

Shipment for Case Complete?Y	Sample(s) to be used for laboratory QC: D10149	Additional Sampler Signature(s): Peter Bird	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

PCB = PCBs (AROCLORS), PCB/OIL ID = Polychlorinated Biphenyls / Oil Ident, PER_SOL = Percent Solids, TCL VOA = Volatiles

TR Number: 1-043543498-042105-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: U.S. EPA OSC Frank Gardner; Phone (617) 918-1278; Fax (617) 918-0278

LABORATORY COPY

Appendix E

Analytical Data Tables

Analytical Sample Results Summary Table
Lonsdale Bleachery Site
TDD: 05-07-0036, Task No. 0036

DAS No.	Sample ID	Date Collected	Analyte	Result	R.L.
D16295	ACM-01	9/22/2004	Asbestos - Chrysotile	35%	1.0%
D16296	ACM-02	9/22/2004	Asbestos - Chrysotile	30%	1.0%
D16297	ACM-03	9/22/2004	Asbestos - Amosite	20%	1.0%
D16298	ACM-04	9/22/2004	Asbestos - Amosite	1%	1.0%
			Asbestos - Chrysotile	1%	1.0%
D16299	ACM-05	9/22/2004	Asbestos - Amosite	12%	1.0%
D11910	Boring No. 4	11/5/2004	Oil ID - Degraded fuel oil and motor oil	NA	NA
			2-Butanone (MEK)	480 µg/Kg	170 µg/Kg
D11911	Boring No. 5	11/5/2004	Oil ID - Degraded fuel oil and motor oil	NA	NA
			2-Butanone (MEK)	750 µg/Kg	400 µg/Kg
D11912	Boring No. 7	11/5/2004	Oil ID - Degraded fuel oil and motor oil	NA	NA
			4-Methyl-2-Pentanone (MIBK)	620 µg/Kg	340 µg/Kg
			N-Butylbenzene	420 µg/Kg	340 µg/Kg
D05151	LB-B12	4/20/2005	Oil ID - Bunker C fuel oil, weathered	NA	NA
D05152	LB-B13	4/20/2005	Oil ID - Bunker C fuel oil, weathered	NA	NA
			1,2,4-Trimethylbenzene	54,000 µg/Kg	7,600 µg/Kg
			1,3,5-Trimethylbenzene	16,000 µg/Kg	7,600 µg/Kg
			Ethylbenzene	10,000 µg/Kg	7,600 µg/Kg
			M/P Xylene	32,000 µg/Kg	15,000 µg/Kg
			N-Butylbenzene	16,000 µg/Kg	7,600 µg/Kg
			N-Propylbenzene	8,800 µg/Kg	7,600 µg/Kg
			Naphthalene	340,000 µg/Kg	7,600 µg/Kg
			Ortho Xylene	19,000 µg/Kg	7,600 µg/Kg
			Para-Isopropyltoluene	8,400 µg/Kg	7,600 µg/Kg
			Toluene	16,000 µg/Kg	7,600 µg/Kg
D05153	LB-B14	4/20/2005	Oil ID - Bunker C fuel oil, weathered	NA	NA
D05154	LB-B15	4/21/2005	Oil ID - Trace, Bunker C fuel oil, weathered	NA	NA
D05155	LB-B16	4/21/2005	Oil ID - Trace, Bunker C fuel oil, weathered	NA	NA
D05156	LB-B17	4/21/2005	Oil ID - Unknown	NA	NA
D10065	LB-B18	4/20/2005	Oil ID - Bunker C fuel oil, weathered	NA	NA
D10066	LB-SP1	4/20/2005	Oil ID - Unknown	NA	NA
D10067	LB-SP2	4/20/2005	Oil ID - Unknown	NA	NA
D10068	LB-SP3	4/20/2005	Oil ID - Unknown	NA	NA
D10149	LB-B9	4/20/2005	Oil ID - Unknown	NA	NA
D10150	LB-B10	4/20/2005	Oil ID - Bunker C fuel oil, weathered	NA	NA
D10151	LB-B11	4/20/2005	Oil ID - Bunker C fuel oil, weathered	NA	NA

R.L. = Reporting Limit
No. = Number

µg/Kg = micrograms per kilogram
% = Percent

NA = Not Applicable